

CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A system of the production of a blood component composition, comprising:
a centrifuge including a blood reservoir for receiving and separating an anticoagulated blood sample having multiple inactive blood components;
a dispenser being disposed outside of the centrifuge and the blood reservoir and having first collection chamber containing an activation agent and a second collection chamber containing one or more medicinal materials;
means for removing at least one of the inactive blood component upon separation from the centrifuge and delivering a first portion of the inactive blood component to the first collection chamber and a second portion of the inactive blood component to the second collection chamber, the first collection chamber activating the first portion of the inactive blood component and storing a resulting activated blood component comprising a clot and thrombin, the second collection chamber combining the second portion of the inactive blood component with the one or more medicinal materials;
a filter for separating the thrombin from the clot; and
a nozzle for entraining and mixing the thrombin with the second portion of the inactive blood component comprising the one or more medicinal materials thereby forming the blood component composition.
2. The system of claim 1, wherein the blood sample is separated into various inactive blood components comprising a red blood cell component, a white blood cell component, a platelet rich plasma component and a platelet poor plasma component.
3. The system of claim 1, wherein the first collection chamber contains a restoration agent.
4. The system of claim 3, wherein the restoration agent is a calcium salt or an anti-heparin agent.
5. The system of claim 4, wherein the calcium salt is calcium chloride, calcium gluconate, or calcium carbonate.
6. The system of claim 4, wherein the anti-heparin agent is heparinase or protamine.
7. The system of claim 1, wherein the activation agent is glass wool, silica, aluminum, diatomaceous earth, kaolin, plastic, siliconized glass or a chemical activator.

8. The system of claim 1, wherein the one or more medicinal materials are selected from the group consisting of drugs, analgesic compounds, antibacterial compounds, antibiotics, antifungal compounds, anti-inflammatories, antiparasitic compounds, antiviral compounds, anticancer compounds, genetic agents, enzyme inhibitors, glycoproteins, growth factors, hormones, steroids, glucocorticosteroids, immunomodulators, immunoglobulins, minerals, neuroleptics, proteins, peptides, lipoproteins, tumoricidal compounds, tumorstatic compounds, toxins, vitamins, bone, gelatin, collagen, degradable polymers, hyaluronic acid, carbohydrates and starches.
9. The system of claim 1, wherein the means for removing at least one of said separated inactive blood component from the centrifuge and delivering a first portion of the inactive blood component to the first collection chamber and a second portion of the inactive blood component to the second collection chamber comprises a lumen.
10. A method of producing a blood component composition, comprising:
providing an anticoagulated blood sample having multiple inactive components from a patient;
centrifuging the blood sample to separate said inactive blood components;
combining a first portion of one of the separated inactive blood components with an activation agent to form a clot containing thrombin;
filtering the thrombin from the clot;
combining one or more medicinal materials with a second portion of the separated inactive blood component; and
combining the thrombin and the second portion of the separated inactive blood component comprising one or more medicinal materials to produce the blood component composition.
11. The method of claim 10, wherein the first portion of the separated inactive blood component is combined with a restoration agent.
12. The method of claim 11, wherein the blood sample is anticoagulated with heparin prior to centrifuging.
13. The method of claim 12, wherein the restoration agent is an anti-heparin agent.
14. The method of claim 13, wherein the anti-heparin agent is heparinase or protamine.
15. The method of claim 10, wherein the activation agent is glass wool, silica, aluminum, diatomaceous earth, kaolin, plastic, siliconized glass or a chemical activator.

16. The method of claim 10, wherein the inactive blood component is inactive platelet rich plasma.

17. The method of claim 10, wherein the inactive blood component is inactive platelet poor plasma.

18. The method of claim 10, wherein the one or more medicinal materials are selected from the group consisting of drugs, analgesic compounds, antibacterial compounds, antibiotics, antifungal compounds, anti-inflammatories, antiparasitic compounds, antiviral compounds, anticancer compounds, genetic agents, enzyme inhibitors, glycoproteins, growth factors, hormones, steroids, glucocorticosteroids, immunomodulators, immunoglobulins, minerals, neuroleptics, proteins, peptides, lipoproteins, tumoricidal compounds, tumorstatic compounds, toxins, vitamins, bone, gelatin, collagen, degradable polymers, hyaluronic acid, carbohydrates and starches.

19. The method of claim 10, further comprising applying the blood component composition to a desired location on or within the patient.

20. The method of claim 19, wherein the desired location is a wound.

21. The method of claim 10, wherein the one or more medicinal materials are obtained from the patient.

22. A method of producing a blood component composition, comprising:
providing an anticoagulated blood sample having multiple inactive components from a patient;
centrifuging the blood sample to separate said inactive blood components;
combining a first portion of one of the separated inactive blood components with an activation agent to form a clot containing thrombin;
filtering the thrombin from the clot;
providing a medicinal material obtained from the patient;
combining the medicinal material with a second portion of the separated inactive blood component; and
combining the thrombin and the second portion of the separated inactive blood component comprising the medicinal material to produce the blood component composition.

23. The method of claim 22, wherein the first portion of the separated inactive blood component is further combined with a restoration agent.

24. The method of claim 23, wherein the blood sample is anticoagulated with heparin prior to centrifuging.

25. The method of claim 24, wherein the restoration agent is an anti-heparin agent.
26. The method of claim 25, wherein the anti-heparin agent is heparinase or protamine.
27. The method of claim 22, wherein the activation agent is glass wool, silica, aluminum, diatomaceous earth, kaolin, plastic, siliconized glass or a chemical activator.
28. The method of claim 22, wherein the inactive blood component is inactive platelet rich plasma.
29. The method of claim 22, wherein the inactive blood component is inactive platelet poor plasma.
30. The method of claim 22, wherein the medicinal material is selected from the group consisting of drugs, analgesic compounds, antibacterial compounds, antifungal compounds, anti-inflammatories, antiparasitic compounds, antiviral compounds, anticancer compounds, genetic agents, enzyme inhibitors, glycoproteins, growth factors, hormones, steroids, glucocorticosteroids, immunomodulators, immunoglobulins, minerals, neuroleptics, proteins, peptides, lipoproteins, tumoricidal compounds, tumorstatic compounds, toxins, vitamins, bone, gelatin, collagen, carbohydrates and starches.
31. The method of claim 22, further comprising applying the blood component composition to a desired location on or within the patient.
32. The method of claim 31, wherein the desired location is a wound.